A NEW PROTOZOAN FROM THE LARVA OF THE BEETLE OSMODERMA SCABRA

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Smears from the hind intestine of the larva of *Osmoderma scabra*, a large black beetle that inhabits decaying sawdust and wood, contain abundant *Nyctotherus* Leidy. An investigation of the literature reveals that more than 25 species of this ciliate genus have been described from about the same number of hosts. Description of the new species is given below.

The drawings herein were made with the camera lucida at × 1,600 and × 700.

NYCTOTHERUS OSMODERMAE, new species

Specific diagnosis.—Body of organism typically egg shaped. Size 50μ to 87μ long and 44μ to 68μ wide. A large group are 66μ to 70μ long and 50μ to 60μ wide. Nuclei oblong or convex and 24.6μ long and 11.2μ or 8μ wide. The cytopharynx ends at 20.8μ from the posterior end and in the average-size specimen about 32μ and 16μ, respectively, from the oral and aboral sides or surfaces. Cytopharynx 48μ long. Cilia 8μ long and the rows 3.2μ from each other. Micronucleus (pl. 1, fig. 2) anterior to the macronucleus and frequently slightly imbedded in it; the shape is oblong and the size 3.2μ long by 2.4μ wide. The chromatin is distributed in small nearly spherical masses. A caryophore, or suspensor of the nucleus, is visible in many specimens. Cytoplasm in the anterior end differentiated from that posterior to the nucleus by lack of vacuoles. A distinct cytopynge (pl. 1, fig. 2) is located at the extreme posterior end.

Dividing forms.—Stages of division of *Nyctotherus* have been observed in detail by Zulueta (1916) in *N. ovalis*. The forms examined by me (pl. 2) are much like those described and pictured by him, with the exception of (pl. 2, fig. 2) an individual with two new cytopharynges formed previous to the division of the nucleus. As stated by Zulueta, the organelles disappear before division, to be formed anew in the daughter cells (pl. 2, fig. 1). It is not possible to follow the activities of the micronucleus in the material available, but it has been clearly seen in one organism (pl. 2, fig. 5) in the late phase of

cell division and also in two organisms with the macronuclei much elongated, as in the stage shown in plate 2, figure 2. In the latter the micronucleus was longer than usual, but no delicate spindle was detected. The chromatin is in spherical granules. One dividing organism similar to that shown in plate 2, figure 3, is almost separated into daughter cells, and yet the isthmus connecting the daughter macronuclei still remains.

Type specimen.—U.S.N.M. no. 8586.

Host.—Osmoderma scabra.

Location.—Posterior intestine.

Distribution.—Pennsylvania.

Remarks.—The distinctive features about the species are the size and shape of the nuclei and other organelles. The absence of the caryophore in some specimens may be due to the preparation, or it may suggest that it is an artifact. Grassé (1926) divides the genus *Nyctotherus* into two groups, depending upon the presence or absence of the caryophore. For those lacking this organelle he suggests the new genus name *Nyctotherides*.

TABLE 1.—*Recorded species of* Nyctotherus

SPECIES	HOST	LOCATION
africanus Castellani	*Homo sapiens*	Intestine (C).
amaniensis Bezzenberger	*Bufo* sp	Intestine.
buissoni Pinto	Cockroach	Intestine (C).
comatulae Claparède and Lachmann.	*Comatula mediterranea*	Intestine and coelomic fluid.
cordiformis Ehrenberg	*Rana temporaria, R. esculenta, Bombinator igneus, Bufo cinereus, B. melanostictus.*	Intestine and cloaca (C).
cunhai Pinto	*Hyla crospedospila*	Intestine.
duboisii Künstler	*Cetonia aurata* (larvae), *Oryctes maricornis*	Intestine (C).
faba Schaudinn	*Homo sapiens*	Intestine.
giganteus Krause	do	Do.
györyanus Claparède and Lachmann.	*Hydrophilus piceus*	Do.
haematobius Claparède and Lachmann.	*Apus cancriformis, Lepidurus productus*	Branchial sacs.
haranti Grassé	*Tarentola mauritanica*	Intestine (C).
kempi Ghosh	*Ampullaria globosa*	Rectum.
macropharyngeus Bezzenberger	*Rana tigrina, R. cyanophlyctis, R. hexadactyla*	Cloaca.
magnus Bezzenberger	*Rana hexadactyla*	Do.
multisporiferus Walker	*Cavia cobaya*	Intestine.
osmodermae Zeliff	*Osmoderma scabra*	Hind intestine.
ovalis Leidy	*Blatta orientalis, B. germanica, Gryllotalpa vulgaris, Periplaneta americana.*	Intestine (C).
papillatus Dobell	*Bufo melanostictus, Rana tigrina, Rhacophorus maculatus.*	Rectum.
parvus Walker	*Rana clamata, R. palustris*	Do.
piscicola Dobell	*Rana tigrina, Piarectus brachypomus*	Intestine (C).
reniformis Bhatia and Gulati	*Bufo macrotis*	Rectum.
termitis Dobell	*Calotermes militaris*	Intestine (C).
tejerai Pinto	*Bufo marinus*	Intestine.
tipulae Grassé	*Ctenophora elegans*	Do.
travassosi Cunha and Pinto	*Glossoscolex wiengreeni*	Do.
velox Leidy	*Julus marginatus*	Intestine (C).
viannai Pinto	Batrachian	Intestine.
sp. D'Udekem	*Julus terrestris*	Do.

Table 1 lists the species of *Nyctotherus* that have been recorded, but the complete data on each are difficult to obtain. The letter C indicates the presence of a caryophore. Bhatia and Gulati (1927) give a list of species and a key for identification. The list is included here with some additions, but the key is not repeated. *N. osmodermae* is closely related to *N. duboisii* (Künstler).

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